



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,086	03/30/2004	Akitaka Makino	648-43120CC2	3010
20457 7590 07/24/2008 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873				
EXAMINER MOORE, KARLA A				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
07/24/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,086

Applicant(s)

MAKINO ET AL.

Examiner

KARLA MOORE

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-14, 17-19, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-14, 17-19, 22 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 12-14, 17, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0110611 A1 to Lappen et al. in view of U.S. Patent No. 6,532,715 to Reinke et al. and U.S. Patent No. 4,722,298 to Rubin et al.
4. Regarding claim 12, Reinke et al. and Lappen et al. (hereinafter referred to as Reinke and Lappen, respectively) disclose a vacuum processing apparatus substantially

as claimed and comprising: a transfer box (Lappen, Figure 1, 15) inside or which an object wafer to be processed is transferred under an atmospheric condition by a transfer robot (Lappen, Figure 1, 25 and 27) disposed therein, the transfer box having a plurality of cassettes (Lappen, Figure 1, 21 and 22) installed at a front side portion thereof; a vacuum transfer unit (Lappen, Figure 1, 11) disposed at a back side portion of the transfer box and coupled to a back side surface portion of the transfer box, the vacuum transfer unit enabling transfer of the object wafer therein under a vacuum condition; at least one vacuum processing chamber (Lappen, Figure 1, 12) disposed a back or lateral side of the vacuum transfer unit and being connected thereto (via load lock chambers 13), the at least one vacuum processing chamber being supplied with gas and enabling processing of the object wafer transferred under the vacuum condition by a plasma generated therein; and a plurality of connector portions (at facilities integration plate Figures 1-3, 100 in Reinke) of utility paths which connect with paths arranged in another floor of a building different from a floor of the building in which the vacuum processing apparatus¹ is installed so that the at least one vacuum processing chamber is disposed above the floor, the plurality of connector portions being disposed substantially so as to extend substantially linearly under a connecting portion (Lappen, Figure 1, 13) of the vacuum transfer unit and the back side surface of the transfer box and along the back side surface, wherein the utility paths enable supply of utilities including the gas

¹ The plurality of connector portions are part of the vacuum processing apparatus, thus, to say that the plurality of connector portions are on a different floor than the vacuum processing apparatus would be nonsensical. Therefore, Examiner has assumed that the limitation "a plurality of connector portions of utility paths which connect with paths arranged in another floor of a building different from a floor of the building in which the vacuum processing apparatus is installed", is meant to refer to the plurality of

supplied from the building having the vacuum processing apparatus installed therein to the vacuum transfer unit or the at least one vacuum processing chamber and enables discharge of the exhaust from the vacuum transfer unit or the at least one vacuum processing chamber including the utilities supplied thereto.

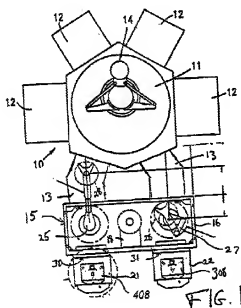


Figure 1 of Lappen

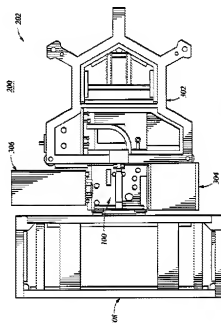


Figure 3 of Reinke

10. Each of the above Figures is of a Centura semiconductor processing tool manufactured by Applied Materials (for example, see Paragraphs 2 and 3 of Lappen and column 2, rows 44-55 of Reinke). In Reinke, the provision of a facilities integration plate (100) provided below an area which would correspond to an area in Lappen under the connection portion between the transfer box (factory interface, 304) and a vacuum

connector portions being on a different floor than the transfer box, the vacuum transfer unit and/or the at least one vacuum processing chamber.

transfer unit (not explicitly called out in Reinke, but corresponding to the area labeled "Vacuum Processing Block", above) is disclosed (for example, see Figures 2 and 3 and column 3, rows 51-59).

11. Regarding claim 13, the disclosures by Reinke et al. and Lappen et al. can also be characterized as disclosing a vacuum processing apparatus substantially as claimed and comprising: at atmospheric block (Lappen, Figure 1, 15) including a transfer box inside of which an object wafer to be processed is transferred under an atmospheric condition by a transfer robot (Lappen, Figure 1, 25 and 27) disposed therein, the transfer box enabling holding of a plurality of wafer cassettes (Lappen, Figure 1, 21 and 22) installed at a front side surface portion thereof; a vacuum processing block (Lappen, Figure 1, 11 and 12) installed at a connecting portion (Lappen, Figure 1, 13) of the vacuum transfer unit and the transfer box, wherein the vacuum processing block comprises: a vacuum transfer unit (Lappen, Figure 1, 11) disposed at a back side of a back side surface portion of the transfer box and connected thereto by a connection portion thereof (via load locks 13), the vacuum transfer unit enabling transfer of the object wafer therein under a vacuum condition and a plurality of vacuum processing chambers (12) being disposed at a rear back or lateral side of the vacuum transfer unit and being connected thereto, at least one of the vacuum processing chambers being supplied with gas and enabling processing of the object wafer transferred under the vacuum condition by a plasma generated therein; and a plurality of connector portions (at facilities integration plate Figures 1-3, 100 in Reinke) of utility paths which connect with utility paths arranged in another floor of the building in which the vacuum

processing apparatus is installed so that the plurality of vacuum processing chambers are disposed above the floor, the plurality of connector portions being disposed so as to extend substantially linearly under the connecting portion of the transfer box and the vacuum transfer unit, and along the back side surface portion of the transfer box in the backside thereof; wherein the utility paths enable a supply of utilities including the gas supplied from the building having the vacuum processing apparatus installed therein to the vacuum transfer unit or to the at least one of the plurality of processing chambers to enable discharge of exhaust from the vacuum transfer unit or to the at least one of the plurality of processing chambers including utilities supplied thereto.

12. Lappen and Reinke disclose the invention substantially as claimed and as described above.

13. However, regarding the detachable connection feature of the vacuum transfer unit, transfer box and vacuum processing chambers, recited in claims 12 and 13, Lappen and Reinke fail to disclose the chambers that make up the vacuum processing apparatus as detachable.

14. Rubin et al. teach the provision of a modular vacuum processing apparatus constructed of individual, independent, detachable processing units that function as building blocks and are capable of handling wafer flow in multiple directions while performing a multitude of processing functions or operations (abstract).

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a modular vacuum processing

apparatus comprising detachable units in Lappen and Reinke in order to handle wafer flow in multiple directions while performing a multitude of processing functions or operations as taught by Rubin et al.

16. With respect to claims 14 and 19, Reinke teach that the utilities provided/removed to/from the apparatus via the facilities integration plate may include plural kinds of fluids (liquids and gases) supplied from the building (e.g. column 1, rows 29-43). It is also noted that the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

17. With respect to claims 17 and 22, as described above, the connector portions of the utility paths are disposed under at least one load lock chamber (13) consisting of the connection portion between the transfer box and the vacuum transfer unit.

18. Claims 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lappen et al., Reinke et al. and Rubin et al. as applied to claims 12-14, 17, 19 and 22 above, and further in view of U.S. Patent No. 5,855,681 to Maydan et al.

19. Lappen et al., Reinke et al. and Rubin et al. disclose the invention substantially as claimed and as described above.

20. However, Lappen et al., Reinke et al. and Rubin et al. fail to teach providing display units disposed at the back side surface portion of the transfer box for enabling display of a status of a utility.

21. Maydan et al. teach providing display units at various locations for the purpose providing an interface between operators and technicians and a processing system (column 21, rows 21-19).

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided display units in Lappen et al., Reinke et al. and Rubin et al. at locations where the operators and/or technicians would be able to interface with the system as taught by Maydan et al.

Response to Arguments

23. Applicant's arguments filed 16 April 2008 have been fully considered but they are not persuasive.

24. Applicant has argued that the combination of Reinke and Lappen fail to disclose the plurality of connector portions of the utility paths being disposed so as to extend substantially linearly above the floor of the building. Examiner disagrees. Examiner finds that Figure 2 or Reinke fairly suggests at least portions of the plurality of connector portions extending linearly above the floor of the building. Thus, the prior art anticipates the claimed invention of the plurality of connector portions extending substantially linearly above the floor of the building.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **KARLA MOORE** whose telephone number is (571)272-1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karla Moore/
Primary Examiner, Art Unit 1792
21 July 2008